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ABSTRACT

The Economic Policy Institute (EPI) study, by measuring comparative education spending levels between the United States and other industrialized nations, shifts the focus of the education debate from the critical issue of how to reform American's education system to matching spending with other nations. The EPI calculates a country's education spending as the ratio of that country's educational expenditures to its national income. A superior method for equating education expenditure levels among countries is Purchasing Power Parity. When this method is used to equate per-student expenditures across nations, the ranking of countries changes dramatically from the EPI analysis. Because private spending constitutes a significant share of America's preprimary education, total U.S. spending for preprimary education is understated in the EPI report relative to the spending of other nations in which preprimary education is publicly supported. When pre-K through 12 spending is accurately compared to other nations, the U.S. ranks second only to Switzerland out of 22 Organization for Economic Cooperation and Development countries. A comparative review of 187 studies of the relationship between spending and achievement scores uncovered no significant correlation between the two; thus, the discussion on how to improve education must focus on how to improve the use of resources. (KM)

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UNITED STATES DEPARTMENT OF EDUCATION
OFFICE OF THE DEPUTY UNDER SECRETARY FOR PLANNING, BUDGET AND EVALUATION

THE DEPUTY UNDER SECRETARY

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NOTE TO SENIOR OFFICERS

Attached is our analysis of the Economic Policy Institute's report on education spending. I hope you will find this of interest.

Charles E.M. Kolb

Attachment

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SHORTCHANGING EDUCATION: A CASE STUDY IN FLAWED ECONOMICS

Technical Assessment

Overview

The Economic Policy Institute (EPI) study never does what it claims to do--measure comparative education spending levels between the United States and other industrialized nations. Such a comparison requires a measure of per pupil spending in each country's value in a common currency (e.g., U.S. dollars). Hence, the EPI study shifts the focus of the education debate away from the critical issue of how to reform the U.S. education system to that of matching spending with other nations.

1. The Economic Policy Institute's proposed measure, education's share of national income, is not an appropriate measure of the commitment of a nation for education.

The Economic Policy Institute (EPI) calculates a country's education spending as the ratio of that country's educational expenditures to its national income. In fact, this is not a measure of spending commitment at all. Its value depends not only on what a country is spending on education (i.e., the numerator of the ratio), but also on the size of its economy (i.e., the denominator of the ratio).

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Although the EPI report uses its measure as interchangeable with spending levels, the two are not equivalent. The following examples illustrate the differences among measures. Applying the EPI statistic to the 50 U.S. States (1986), Minnesota's education expenditures absorbed 3.7 percent of its State's income and Mississippi's education expenditures absorbed 3.9 percent of its State's income. Yet no one would conclude that Mississippi, a relatively low-income State, devotes more resources to education than Minnesota, a relatively high-income State. Actual expenditures per pupil, an appropriate measure of educational spending, varied widely between the two States--$4,180 in Minnesota compared to $2,350 per pupil in Mississippi.

Food expenditure comparisons among nations further illustrate the wrong headedness of the EPI approach. Impoverished nations, such as Ethiopia and India, devote about half their national income to food, roughly five times the U.S. percentage. Yet, no one would conclude that these nations actually achieve higher real levels of food expenditures, nor that the U.S. should increase its food expenditures to reach the percentages spent in less well-off countries.

2. The Purchasing Power Parity (PPP) index is a superior method for equating education expenditure levels among countries. The PPP adjusted expenditures "can be applied to obtain 'real' quantity comparisons between countries at a certain time." (OECD) When used to equate per student expenditures across nations, the ranking of nations changes dramatically from the EPI analysis.

Within a country, resources for education are measured by its spending per pupil, with education spending expressed in terms of that country's own currency. For the U.S., this is expressed as the dollar value of its expenditures per pupil. International spending comparisons require equating currency values across countries. While market exchange rates would translate expenditures of foreign currencies into their U.S. dollar equivalents, the results would be questionable because of the substantial fluctuations in exchange rates.

While the exchange rate approach is flawed, the solution is not to throw out per pupil spending comparisons, but to apply a more accurate method for equating currencies. The Purchasing Power Parity (PPP) index is such a measure. The Organization for Economic Cooperation and Development (OECD), whose member countries are included in the EPI list of countries, commonly uses this index for generating comparative international expenditure statistics.

Construction of the PPP index is similar to that of the U.S. Consumer Price Index (CPI). Both are based on the comparative cost of a fixed market basket of goods. While the CPI measures comparative costs of purchasing a fixed market basket between two time periods, the PPP measures comparative costs of a common market basket between two countries. Thus, the PPP measures "the number of U.S. dollars needed in each country to buy the same representative basket of fixed goods and services costing $100 in the United States."

Table 1 displays the PPP values for OECD nations for three years--1985, 1987, and 1988. An increase in the index means that it costs more dollars to purchase the same goods. (Note the generally small changes in the magnitudes between 1985 and 1988 for most nations, in contrast to the sharp decline in the value of the dollar as shown by the market exchange rates.)

3. The EPI paper classifies K through 12 as including pre-primary education.

Appendix A of the EPI paper states that "In this paper, when the expression K-12 is used, 'K' represents all the pre-primary years." This definition of K through 12 is not only

deceptive, but biases aggregate public expenditure figures against the U.S. Private spending by families with young children constitutes a much more significant share of total pre-primary education in the U.S. than in most other nations. Hence, total U.S. spending for pre-primary education is understated relative to those of other nations in which pre-primary education is publicly supported and included in their government's reported figures.

4. <u>The inclusion of expenditures in the "other" and "not distributed" categories may bias results against the U.S. which does not report spending under these categories.</u>

These categories are not well-defined by UNESCO, and moreover, there is no breakdown by education level. According to OECD, "other expenditures" are those which cannot be classified in categories such as instructional staff, administration, and materials. The "not distributed" category refers to government subsidies or transfers to public and private institutions which cannot be separated by purpose, mainly due to the administrative autonomy of the recipient institutions.

5. When pre-K through 12 spending is accurately compared to other nations, the U.S. ranks second only to Switzerland out of 22 OECD countries. If the uncertain "other" and "not

distributed" categories are included, the U.S. ranks fifth (Table 2). (Note: The EPI comparisons have been extended to include all 22 OECD countries for which the PPP is available.)

Table 2 uses the same UNESCO information on country expenditures and enrollments as did the EPI. It applies the PPP index to equate currencies across countries.

Two rankings are shown. U.S. per pupil spending ranks second out of 22 OECD countries, using only known expenditures. When the unknown spending categories are included, the U.S. ranks fifth out of 22.

6. Research has supported the position that the discussion on how to improve education must focus on how to improve the use of resources.

In a comprehensive review of 187 studies of the relationship between spending and achievement scores, Eric Hanushek of the University of Rochester found no significant correlation between the two.

Moreover, between school years 1980-1981 and 1988-1989, aggregate spending on elementary and secondary education, adjusted for inflation, rose from $157 to $199 billion (in

1988-89 dollars) for an increase of about 27 percent. Average salaries for public school teachers rose from $24,632 to $29,567 (in constant dollars) over the same period. Pupil-to-teacher ratios decreased from 18.9 to 17.6 students per teacher.

However, over this same period, test scores have improved very little. Recent evidence from the National Assessment of Educational Progress (NAEP) shows that reading and writing scores have remained virtually unchanged.

TABLE 1

COMPARISON OF INTERNATIONAL CURRENCIES

	Comparative Price Levels		
	1985	1987	1988
Australia	86	94	111
Austria	80	133	133
Belgium	75	119	118
Canada	89	93	101
Denmark	92	149	154
Finland	96	141	153
France	81	124	124
Germany	84	137	138
Greece	56	74	77
Iceland	91	138	150
Ireland	76	110	111
Italy	68	108	111
Japan	93	147	162
Luxembourg	73	110	110
Netherlands	77	119	119
New Zealand	67	99	114
Norway	100	128	132
Portugal	39	60	63
Spain	56	86	93
Sweden	95	137	146
Switzerland	98	163	166
Turkey	29	31	30
United Kingdom	73	95	107
United States	100	100	100

The comparative price levels show the number of U.S. dollars needed in each country to buy the same representative basket of final goods and services costing $100 in the United States. They are based on the purchasing power parity index for each country.

SOURCE: Organization for Economic Cooperation and Development (OECD)

TABLE 2

INTERNATIONAL COMPARISONS OF PER STUDENT EXPENDITURES (1)
(Pre–K through Secondary School)

	Year	Current Expenditures Per Student	Rank	Current Expenditures Per Student Including Unknown Other Expenditures	Rank
Switzerland	1985	$3,683	1	$3,874	1
United States	1985	$3,310	2	$3,310	5
Sweden	1985	$3,214	3	$3,819	2
Canada	1985	$3,192	4	$3,499	4
Denmark	1986	$3,089	5	$3,596	3
Norway	1985	$2,900	6	$3,277	6
Luxembourg	1983	$2,596	7	$2,970	7
Austria	1985	$2,497	8	$2,829	8
West Germany	1985	$2,253	9	$2,530	9
Belgium	1985	$2,234	10	$2,509	10
France	1984	$1,996	11	$2,329	11
Australia	1985	$1,995	12	$2,147	14
United Kingdom	1984	$1,897	13	$2,155	12
Netherlands	1984	$1,860	14	$2,152	13
Japan	1985	$1,805	15	$2,079	15
New Zealand	1985	$1,262	16	$1,324	17
Italy	1983	$1,249	17	$1,568	16
Ireland	1984	$1,108	18	$1,143	18
Portugal	1985	$911	19	$963	19
Spain	1979	$598	20	$623	20
Greece	1984	$514	21	$520	21
Turkey	1985	$241	22	$260	22

(1) Per student expenditures in foreign currencies are expressed in dollar values using the 1985 Purchasing Power Parities (PPP) index supplied by the Organization for Economic Cooperation and Development (OECD).

Press Release

TO EDUCATION EDITORS:

Following is embargoed response by U.S. Education Department to Economic Policy Institute (EPI) briefing report on international comparisons in education spending. Embargo, set by EPI, is 6 p.m. Jan. 16 (for a.m. papers Jan. 17).

EPI's report on international comparisons of education spending shows why economics can indeed be a dismal science. This "nonpartisan economic think tank" has mixed apples, oranges and moonbeams to produce an indigestible concoction.

The EPI report confuses the share of national spending with actual spending -- a false comparison to support a spurious conclusion. It's fun to play with numbers, but it can be a dangerous delusion if used as the basis for public policy.

EPI claims that by eliminating higher education spending from the comparison, they have discovered a lack of commitment to our nation's students. Not true. When K-12 spending is accurately compared to other nations -- as average per pupil expenditures and not as "share of national income" -- the U.S. ranks 2nd only to Switzerland. (If the nebulous "other" category in included, the U.S. is 5th.)

Americans are generous supporters of education, but we are not getting what we pay for. Until we admit that it is time to restructure -- to rethink an education system created more than a century ago to serve a largely agrarian nation -- we will continue to be disappointed in the academic performance of our children.

NOTE: Attached is a discussion of methodology. A more technical analysis will be available from the Department shortly.

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DISCUSSION OF METHODOLOGY

EPI uses seriously flawed methodology to arrive at dubious conclusions:

-- in stating that meaningful international comparisons of education spending must be related to shares of national income.

The more appropriate comparative measure is actual funds spent, but EPI rejects this traditional approach and irrelevantly substitutes "percentage of national income (Gross Domestic Product)." A simple example makes this point: in 1986, Mississippi spent 3.9 percent of its state domestic product on K-12 education, a greater percentage than Minnesota's 3.7 percent. But -- much more significantly -- Minnesota spent $4180 per pupil; Mississippi, $2350. EPI's "share of national income" comparison is an inappropriate, unaccepted measure of spending on education.

By analogy EPI would presumably argue that U.S. food expenditure as a percentage of total private consumption expenditures is extremely low when compared to other OECD nations such as France (17.9%), Norway (20%), the UK (14.5%) and Switzerland (20.2%). The average for all OECD nations approaches 20%. In the U.S. the percentage is 11%. Does this mean that the U.S. is a seriously undernourished nation -- and not the breadbasket of the world? Or that we should spend additional resources on food so that we can reach a figure closer to the OECD average?

-- in arguing that exchange rate instability undermines the ability to use per pupil expenditures as a reliable measure of international education spending.

Most of the countries surveyed in the EPI report belong to the Organization for Economic Cooperation and Development (OECD) which makes such comparisons on the basis of equivalent purchasing power, i.e. "the purchasing power parities" index, an index not influenced by exchange rate fluctuations. Using OECD's commonly accepted measure, the U.S. spends more per student on K-12 education than all countries cited in the EPI report, except Switzerland (if the category "other" is included, the U.S. ranks 5th).

-- by including UNESCO categories "other" and "not distributed."

These categories are not clearly defined and are reported by the U.S. as $0.

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-- by defining K-12 to include pre-primary spending, while excluding private pre-primary expenditures in the U.S.

In the U.S. much of pre-primary education is supported privately by families, not reported by the U.S. in K-12 tabulations. Thus, EPI has significantly underreported U.S. spending in this imprecise category.

Finally, spending does not equate with academic achievement. In a comprehensive review of 187 studies, Eric Hanushek of the University of Rochester found no significant correlation between the two, though U.S. K-12 spending has increased about 27% in 1988-89 dollars since the 1980-81 school year (from $157 billion to $199 billion).

The Department will shortly issue a more detailed technical analysis which will address additional flaws in methodology.

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